

documents stored in a document database based on contents of the documents, information pertaining to the documents, and cross-references among the documents, and to generate plural types of display indexes corresponding to the topic patterns, the topic pattern indicating a manner in which message details shift from one message to another;

an input device to input a retrieval request for the document database from a user;

a retrieval engine device to retrieve a document in the document database and to produce a retrieval result; and

a view generation device to generate plural types of views for displaying the retrieval result from said retrieval engine device using the display indexes, to switch the views, and to display the views on the display device.

REMARKS

I. STATUS OF THE CLAIMS

Claims 1-31 are pending.

Claim 19 is amended.

II. REJECTION OF CLAIMS 1-31 UNDER 35 U.S.C. § 103

Page 2 of the Action rejects claims 1-31 under 35 U.S.C. § 103 as being unpatentable over Numata, U.S. Patent No. 5,943,669, in view of Knowles et al., U.S. Patent No. 5,905,863 and further in view of Nolan, U.S. Patent No. 5,933,599.

Claim 1 recites, "a document group keyword extraction device to extract a keyword contained in a document forming part of each group of documents by referring to the document group information; and a document group keyword display device to display a title of each document in each group of documents and keywords extracted from the document corresponding to the title by said document group keyword extraction device, the title and the keywords being displayed in areas related to each other."

Page 3 of the Action states, "Nolan discloses the extraction and display of the subject – keywords—of email documents posted in a bulletin board direction—a *document group keyword extraction device to extract a keyword contained in a document* – (col. 2, lines 30-67, and fig. 9-10)."

Nolan, column 2, lines 30-67, does not relate to keywords. This portion of Nolan

describes organization of information into folders, leaves, and junction points. Nolan, Figures 9-10, illustrate entries in a list listed by subject of an e-mail.

The Applicant submits that a subject or title of an e-mail is not a keyword contained in a document. In fact, the subject or title of an email is not actually contained in the document itself. It is a separate entity.

MPEP 2173.05(a) states, "When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning, in order to chive a complete exploration of the applicant' invention and its relation to the prior art. *In re Zletz*, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989).

Throughout the entire Specification, the word "keyword" is used to designate a word in the body of a document, not in an e-mail title. Further, see Figure 25 of the present Specification for examples of keywords as used in the present invention. Further, See Figure 22 which illustrates in operation 2202 that "searching all sentences in documents in message board." This shows that the "keyword" is intended to be in the body of a document, not merely the title.

Further, the Applicant submits that the e-mail titles in Nolan are not **extracted**, instead the e-mail titles are already known and extraction cannot be realized.

Page 3 of the Action further states, "Nolan fails to explicitly disclose *display keywords extracted from the document corresponding to the title ... the title and the keywords displayed in areas related to each other*. Bailey teaches a preview pane for displaying a message's extracted keywords (col. 2, lines 44-67, and FIG 3)."

Bailey displays both the subject and the sender of an e-mail message simultaneously (See Figure 3). Bailey does not disclose extracting keywords from a document (or an e-mail message) such that it displays "a title of each document in each group of documents and **keywords extracted from the document corresponding to the title** by said document group keyword extraction device, **the title and the keywords being displayed in areas related to each other.**" (emphasis added).

Figure 3 in Bailey illustrates a list of emails in a bottom window, and a content of a selected on of the listed emails in a top window. However, keywords extracted from the document corresponding to the title, do not exist. If the rejection is assuming that words in the title are keywords, well this cannot be realized in claim 1 because the claim recites that the keywords extracted from the document correspond to the title. While a title is displayed in Figure 3, keywords do not exist.

Further, Figure 3 in Bailey does not illustrate title and keywords being displayed in areas related to each other. As discussed above, while titles exist in Bailey, keywords do not. Further, Figure 3 only discloses two areas. One is for titles and one is for a full email content. Titles and keywords are not displayed in areas related to each other.

The cited portion of Bailey, column 2, lines 44-67, relates to highlighting a message and having it displayed in a preview pane. However, this does not disclose or suggest the features discussed above.

Because the individual features discussed above are not disclosed in the references, the combination of the three applied references also does not suggest the present invention as recited in claim 1. Nothing in the combination of the references suggests modifying the references to create the features discussed above.

Further, Page 4 of the Action states, "It would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of Nolan, Knowles, and Bailey, because Bailey teaches above the previewing of messages without having to open them in a separate window."

The Applicant respectfully traverses the above motivation to combine. The Applicant agrees that Bailey teaches previewing of messages in a preview pane without having to open them in a separate window. However, the addition of Nolan and/or Knowles does not serve to add anything to this feature. Therefore, the above motivation is illogical in that it is not really stating a valid grounds to combine. The Applicant submits that there is not sufficient grounds to combine the three references.

Therefore, in view of the above, the Applicant submits that claim 1 is not unpatentable over the combination of the three applied references.

Regarding claim 3, page 4 of the Action states, "Regarding independent claim 3, Nolan discloses the display of a group of bulletin board documents where the documents contributed earlier are referenced to by documents published later (fig. 9-10, and col. 2, lines 30-67.)" The Applicant submits that the feature discussed above in the rejection is not recited in claim 3. The Applicant respectfully requests the Examiner to provide a rejection using the exact claim language.

Claim 3 recites, "a document group analysis device to classify a plurality of documents **forming a set of documents** into at least one group of cross-referenced documents by determining for each document in the set, which of the documents is referenced, and for extracting information about classification as document group information." (emphasis added).

Nolan discloses providing different graphical interfaces displaying offerings in a network. Nolan also relates to expressing referencing relations among documents of a group in a tree structure.

However, Nolan does disclose (or suggest) forming a set of documents into at least one group of cross-references documents . . . in which at least one of the document attribute information and abbreviated information for each document forming part of the group of documents is displayed at a corresponding node.

Page 4 of the Action states, "Nolan fails to explicitly disclose determining for each document in the set, which of the documents is referenced. Knowles teaches 'the present invention utilizes textual context and characteristics of messages in order to provide a more reliable and effective way to construct message threads' (col. 4, lines 8-67, and col. 5, lines 1-13)."

The Applicant submits that Knowles does not determine, for each document in the set, which of the documents is referenced. Knowles analyzes messages based on their title and content. However, this is not determining which of the documents is referenced. Further, there is clearly no "extracting information about classification as document group information."

Claim 3 also recites, "a document attribute analysis device to extract document attribute information about an attribute of each document from a plurality of documents forming the set of documents; . . ."

Page 4 of the Action states, 'Nolan fails to explicitly disclose *a document attribute analysis device to extract document attribute information*. Knowles teaches "the present invention utilizes textual context and characteristics of messages in order to provide a more reliable and effective way to construct message threads...statistical information retrieval techniques are used in conjunction with textual material obtained by filtering of messages" (col. 4, lines 8-67, and col.5, line 1-13).'

Knowles does not extract document attribute information. Knowles analyzes messages based on their content. Document attribute information may be analyzed, but is not extracted.

Claim 3 also recites, "a document group structure display device to display cross-references in each group of documents in a tree structure in which at least one of the document attribute information and abbreviated information for each document forming part of the group of documents is displayed at a corresponding node."

Page 5 of the Action states that the above feature is disclosed by Nolan, column 11, lines 43-67 and Figure 9.

Nolan does not display cross references in each group of documents. Nolan displays a typical tree hierarchy of documents. Further, Nolan does not display at least on of the document attribute information and abbreviated information for each document forming part of the group of documents at a corresponding node. There is no corresponding node in Nolan.

Note that one typical advantage of the invention as recited in claim 3, over prior art devices, is that the present invention, because of the organization of the messages, typically allows a user to find a message of his own preference quickly.

Because the individual features discussed above are not disclosed in the references, the combination of the three applied references also does not suggest the present invention as recited in claim 3. Nothing in the combination of the references suggests modifying the references to create the features discussed above.

Moreover, page 5 of the Action states, "it would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of Nolan, and Knowles, because Knowles teaches the "filtering of messages to achieve a significant level of accuracy at identifying when one message is a reply to another" (col. 3, lines 60-64)."

The Applicant respectfully traverses the above motivation to combine. The Applicant agrees that Knowles teaches calculating which messages may be a reply to another. However, the addition of Nolan and/or Bailey does not serve to add anything to this feature. Therefore, the above motivation is illogical in that it is not really stating a valid grounds to combine. The Applicant submits that there are not sufficient grounds to combine the three references.

Therefore, in view of the above, the Applicant submits that claim 3 is not unpatentable over the combination of the three applied references.

Claim 8 recites, "a document group analysis device to classify a plurality of documents forming a set of documents into at least one group of cross-referenced documents . . ."

The rejection does not state where this feature is found. The Applicant respectfully requests the Examiner to identify where this feature is found in any of the applied references.

Claim 8 also recites, "by determining for each document in the set, which of the documents is referenced . . ."

Page 6 of the Action states, "Nolan fails to explicitly disclose determining for each document in the set, which of the documents is referenced. Knowles teaches 'the present invention utilizes textual context and characteristics of messages in order to provide a more reliable and effective way to construct message threads' (col. 4, lines 8-67, and col. 5, lines 1-13)."

The Applicant submits that Knowles does not determine, for each document in the set, which of the documents is referenced. Knowles analyzes messages based on their title and content. However, this is not determining which of the documents is referenced. Further, there is clearly no “extracting information about classification as document group information.”

Claim 8 also recites, “and for extracting information about classification as document group information . . .”

The rejection does not state where this feature is found. The Applicant respectfully requests the Examiner to identify where this feature is found in any of the applied references.

Claim 8 also recites, “a topic analysis device to further classify each group of cross-referenced documents based on topics extracted from each document forming part of each group of cross-referenced documents, and to extract information about further classification as topic classification information;

a topic keyword extraction device to extract keywords contained in each document relevant to each topic obtained by the further classification of each of the groups of documents by referring to the document group information and the topic classification information;. . .”

Page 6 of the Action states that the topic analysis device and the topic keyword extraction device are both disclosed in Knowles. Page 6 of the Action states that, “Knowles teaches ‘the filtered potential parent messages....are then passed along...The child, or reply, message...is also processed’ (col. 7, lines 56-67, and col. 8, lines 1-67).

Knowles does not extract information about further classification as topic classification information. Knowles also does not extract keywords contained in each document relevant to each topic obtained by the further classification of each of the groups of documents. Knowles analyzes messages to determine which message is a reply to another message. However, this does not disclose extracting keywords contained in each document . . . by referring to the document group information and the topic classification information. There is no topic classification information in Knowles.

Claim 8 also recites, “a topic keyword display device to display a title of each document relevant to each topic obtained by the further classification and keywords extracted from each document corresponding to each title by said topic keyword extraction device, the title and the keywords being displayed in areas related to each other.”

Page 7 of the Action states that, ‘Nolan teaches the display of “bulletin board navigator” (col. 11, lines 43-67 and FIG. 9) – *a topic keyword display device for displayinga relevant title and a keyword extracted--.*’

However, this is different than the topic keyword display device as claimed. Nolan discloses displaying a list of documents in a tree hierarchy. However, the feature of "the title and the keywords being displayed in areas related to each other." Figure 9 of Nolan illustrates only titles of documents, but not keywords. Also, the display in Nolan is not related to keywords extracted from each document, because no keywords are extracted from documents in Nolan.

Because the individual features discussed above are not disclosed in the references, the combination of the three applied references also does not suggest the present invention as recited in claim 8. Nothing in the combination of the references suggests modifying the references to create the features discussed above.

Page 6 of the Action states, "It would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of Nolan, and Knowles because Knowles teaches the 'filtering of messages to achieve a significant level of accuracy at identifying when one message is a reply to another' (col. 3, lines 60-64)."

The Applicant respectfully traverses the above motivation to combine. The Applicant agrees that Knowles teaches calculating which messages may be a reply to another. However, the addition of Nolan and/or Bailey does not serve to add anything to this feature. Therefore, the above motivation is illogical in that it is not really stating a valid grounds to combine. The Applicant submits that there are not sufficient grounds to combine the three references.

Therefore, in view of the above, the Applicant submits that claim 8 is not unpatentable over the combination of the three applied references.

Claim 19 (as amended) recites, "a contents estimation device to estimate topic patterns of the cross-referenced message documents stored in a document database based on contents of the documents, information pertaining to the documents, and cross-references among the documents, and to generate plural types of display indexes corresponding to the topic patterns, the topic pattern indicating a manner in which message details shift from one message to another;"

Page 7 of the Action states, "Nolan fails to explicitly disclose *a content estimation device to estimate topic patterns of the cross-referenced message documents Plural types of display indexes corresponding to the topic patterns*. Knowles teaches "the present invention utilizes textual context and characteristics of messages in order to provide a more reliable and effective way to construct message threads ...statistical information retrieval techniques are used on conjunction with textual material obtained by filtering of messages" (col. 4, lines 8-67,

and col. 5, lines 1-13)."

The Applicant submits that there is no estimation in Knowles. Knowles discloses analyzing a message to determine which message a message is in reply to. However, topic patterns are not **estimated**.

Further, topic patterns indicating a manner in which message details shift from one message to another are not disclosed or suggested in Knowles or the other two applied references.

Moreover, claim 19 recites, "a view generation device to generate plural types of views for displaying the retrieval result from said retrieval engine device using the display indexes, to switch the views, and to display the views on the display device."

Page 8 of the Action states that "Nolan discloses the display of a group of bulletin board documents where the documents contributed earlier are referenced to by documents published later (fig. 9-10, and col. 11, lines 43-67) —a *view generation device to generate plural types of views... ..*"

Nolan does not relate to display indexes which corresponding to the topic patterns, the topic pattern indicating a manner in which message details shift from one message to another, as claimed in claim 19. Therefore, Nolan does not disclose or suggest generating plural types of views for displaying the retrieval result . . . using the display indexes, as claimed.

Because the individual features discussed above are not disclosed in the references, the combination of the three applied references also does not suggest the present invention as recited in claim 19. Nothing in the combination of the references suggests modifying the references to create the features discussed above.

Further, page 7 of the Action states, 'It would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of Nolan, and Knowles, because Knowles teaches the "filtering of messages to achieve a significant level of accuracy at identifying when one message is a reply to another" (col. 3, lines 60-63).'

The Applicant respectfully traverses the above motivation to combine. The Applicant agrees that Knowles teaches calculating which messages may be a reply to another. However, the addition of Nolan and/or Bailey does not serve to add anything to this feature. Therefore, the above motivation is illogical in that it is not really stating a valid grounds to combine. The Applicant submits that there are not sufficient grounds to combine the three references.

Therefore, in view of the above, the Applicant submits that claim 19 is not unpatentable over the combination of the three applied references.

The remaining claims, including independent claims 9, 11, 16, 18, 30, and 31, in view of the above remarks, are also not unpatentable over the applied references.

Therefore, in view of the above, withdrawal of the rejections is respectfully requested.

III. CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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APPENDIX

IN THE CLAIMS:

Only claim 19 is amended. Nevertheless, for the convenience of the Examiner, all of the claims are listed below:

1. (AS TWICE AMENDED) A relevant document display apparatus for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network, the cross-referenced message documents having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said apparatus comprising:

a document group analysis device to classify a plurality of documents forming a set of documents into at least one group of cross-referenced documents by determining for each document in the set, which of the documents is referenced, and for extracting information about classification as document group information;

a document group keyword extraction device to extract a keyword contained in a document forming part of each group of documents by referring to the document group information; and

a document group keyword display device to display a title of each document in each group of documents and keywords extracted from the document corresponding to the title by said document group keyword extraction device, the title and the keywords being displayed in areas related to each other.

2. (AS ONCE AMENDED) The apparatus according to claim 1, wherein said document group keyword display device displays with enhancement a group of documents containing a document specified by a user for retrieval, or a keyword specified for retrieval.

3. (AS TWICE AMENDED) A relevant document display apparatus for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network, the cross-

referenced message documents having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said apparatus comprising:

a document group analysis device to classify a plurality of documents forming a set of documents into at least one group of cross-referenced documents by determining for each document in the set, which of the documents is referenced, and for extracting information about classification as document group information;

a document attribute analysis device to extract document attribute information about an attribute of each document from a plurality of documents forming the set of documents; and

a document group structure display device to display cross-references in each group of documents in a tree structure in which at least one of the document attribute information and abbreviated information for each document forming part of the group of documents is displayed at a corresponding node.

4. (AS UNAMENDED) The apparatus according to claim 3, wherein

said document group structure display device displays the cross-references in each group of documents in a tree structure in which a combination of an abbreviated name of an author and amount-of-document information for each document forming part of the group of documents is displayed as each node by referring to the document group information and the document attribute information.

5. (AS UNAMENDED) The apparatus according to claim 3, wherein

said document group structure display device further displays a plurality of topics extracted from a document contained in each group of documents as associated with each node forming part of the tree structure displayed for the group of documents.

6. (AS UNAMENDED) The apparatus according to claim 5, wherein

said document group structure display device displays each topic and a relevant node in a same color for each group of documents.

7. (AS UNAMENDED) The apparatus according to claim 3, wherein

said document group structure display device displays with enhancement a node corresponding to a document specified by a user for retrieval.

8. (AS TWICE AMENDED) A relevant document display apparatus for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network, the cross-referenced message documents having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said apparatus comprising:

- a document group analysis device to classify a plurality of documents forming a set of documents into at least one group of cross-referenced documents by determining for each document in the set, which of the documents is referenced, and for extracting information about classification as document group information;

- a topic analysis device to further classify each group of cross-referenced documents based on topics extracted from each document forming part of each group of cross-referenced documents, and to extract information about further classification as topic classification information;

- a topic keyword extraction device to extract keywords contained in each document relevant to each topic obtained by the further classification of each of the groups of documents by referring to the document group information and the topic classification information; and

- a topic keyword display device to display a title of each document relevant to each topic obtained by the further classification and keywords extracted from each document corresponding to each title by said topic keyword extraction device, the title and the keywords being displayed in areas related to each other.

9. (AS TWICE AMENDED) A relevant document display method for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network and having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said method comprising:

- classifying a plurality of documents forming a set of documents into at least one group of cross-referenced documents by determining for each document in the set, which of the documents is referenced;

- extracting information about classification as document group information;

- extracting a keyword contained in a document forming part of each group of documents

by referring to the document group information; and

displaying a title of each document in each group of documents and keywords extracted from the document corresponding to the title, the title and the keywords being displayed in areas related to each other.

10. (AS ONCE AMENDED) The method according to claim 9, further comprising displaying with enhancement a group of documents containing a document specified by a user for retrieval, or a keyword specified for retrieval.

11. (AS TWICE AMENDED) A relevant document display method for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network and having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said method comprising:

classifying a plurality of documents forming a set of documents into at least one group of cross-referenced documents by determining for each document in the set, which of the documents is referenced;

extracting information about classification as document group information;

extracting document attribute information about an attribute of each document from a plurality of documents forming the set of documents; and

displaying cross-references in each group of documents in a tree structure in which the document attribute information or abbreviated information for each document forming part of the group of documents is displayed as each node by referring to the document group information and the document attribute information.

12. (AS ONCE AMENDED) The method according to claim 11, further comprising displaying the cross-references in each group of documents in a tree structure in which a combination of an abbreviated name of an author and amount-of-document information for each document forming part of the group of documents is displayed as each node by referring to the document group information and the document attribute information.

13. (AS ONCE AMENDED) The method according to claim 11, further comprising displaying a plurality of topics extracted from a document contained in each group of

documents as associated with each node forming part of the tree structure displayed for the group of documents.

14. (AS ONCE AMENDED) The method according to claim 13, further comprising displaying each topic and the relevant node in a same color for each group of documents.

15. (AS ONCE AMENDED) The method according to claim 11, further comprising displaying with enhancement a node corresponding to a document specified by a user for retrieval.

16. (AS TWICE AMENDED) A relevant document display method for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network and having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said method comprising:

classifying a plurality of documents forming a set of documents into at least one group of cross-referenced documents by determining for each document in the set, which of the documents is referenced;

extracting information about classification as document group information;

further classifying each of the classified group of documents based on topics extracted from each document forming part of each group of documents, and extracting information about further classification as topic classification information;

extracting keywords contained in each document relevant to each topic obtained by the further classification of each group of cross-referenced documents by referring to the document group information and the topic classification information; and

displaying a title of each document relevant to each topic obtained by the further classification and keywords extracted from each document corresponding to each title, the title and the keywords being displayed in areas related to each other.

17. (AS TWICE AMENDED) A computer-readable storage medium storing instructions to direct a computer to perform a method for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network and having a cross-referenced relationship in which a

document contributed earlier is referenced by documents contributed afterwards, said method comprising:

- classifying a plurality of documents forming a set of documents into at least one group of cross-referenced documents by determining for each document in the set, which of the documents is referenced;

- extracting information about classification as document group information;

- extracting a keyword contained in a document forming part of each group of documents by referring to the document group information; and

- displaying a title relevant to each group of documents and a corresponding keyword extracted from the group of documents.

18. (AS TWICE AMENDED) A computer-readable storage medium storing instructions to direct a computer to perform a method for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network and having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said method comprising:

- classifying a plurality of documents forming a set of documents into at least one group of cross-referenced documents by determining for each document in the set, which of the documents is referenced;

- extracting information about classification as document group information;

- extracting document attribute information about an attribute of each document from a plurality of documents forming the set of documents; and

- displaying cross-references in each group of documents in a tree structure in which the document attribute information or abbreviated information for each document forming part of the group of documents is displayed at a corresponding node by referring to the document group information and the document attribute information.

19. (THREE TIMES AMENDED) A relevant document display apparatus for displaying on a display device a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network, the cross-referenced message documents having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said

apparatus comprising:

a contents estimation device to estimate topic patterns of the cross-referenced message documents stored in a document database based on contents of the documents, information pertaining to the documents, and cross-references among the documents, and to generate plural types of display indexes corresponding to the topic patterns, the topic pattern indicating a manner in which message details shift from one message to another;

an input device to input a retrieval request for the document database from a user;

a retrieval engine device to retrieve a document in the document database and to produce a retrieval result; and

a view generation device to generate plural types of views for displaying the retrieval result from said retrieval engine device using the display indexes, to switch the views, and to display the views on the display device.

20. (AS ONCE AMENDED) The apparatus according to claim 19, wherein said view generation device displays a reference tree structure of displayed documents and information relating to a node corresponding to each document by grouping documents having an identical attribute in displayed documents, so that a user can easily understand an entire structure of references among displayed documents.

21. (AS ONCE AMENDED) The apparatus according to claim 19, wherein said view generation device displays a reference tree structure of displayed documents and information relating to a node corresponding to each document by selecting only a document containing a large number of references in the displayed documents based on a size of a screen, so that a user can easily understand an entire structure of references among displayed documents.

22. (AS ONCE AMENDED) The apparatus according to claim 19, wherein said view generation device displays a reference tree structure of displayed documents and information relating to a node corresponding to each document by selecting only a document containing a large number of references to documents containing a user input keyword, so that a user can easily understand an entire structure of references among displayed documents.

23. (AS ONCE AMENDED) The apparatus according to claim 19, wherein said view generation device displays references among displayed documents with a topic pattern

estimated about the documents by said contents estimation device, so that a user can easily understand an entire structure of references among displayed documents.

24. (AS ONCE AMENDED) The apparatus according to claim 19, wherein said view generation device displays, in a calendar format, only documents in a specified time period in displayed documents, so that a user can easily understand a retrieval result from a document database related to time information.

25. (AS ONCE AMENDED) The apparatus according to claim 19, wherein said view generation device displays, at a high intensity level, a specified topic pattern estimated by said contents estimation device, so that a user can easily understand an important portion of documents in a document database.

26. (AS ONCE AMENDED) The apparatus according to claim 19, wherein said view generation device instructs said retrieval engine device to retrieve only a document corresponding to a question and an answer in a specified topic pattern estimated by said contents estimation device, so that a user can easily understand a combination of a question and an answer corresponding to a question item.

27. (AS ONCE AMENDED) The apparatus according to claim 19, wherein said view generation device displays a specified author at a high intensity level based on a history of input opinions for each document in the document database and a specified topic pattern estimated by said contents estimation device, so that a user can easily understand an important portion of documents in a document database.

28. (AS ONCE AMENDED) The apparatus according to claim 19, wherein said view generation device displays as a directed graph an author of each document in the document database as a node, the reference among the documents as a link, and a time of reference as intensity of the link, so that a user can easily understand references among documents in a document database from an author's viewpoint.

29. (AS UNAMENDED) The apparatus according to claim 19, wherein a document stored in the document database is a message document of network news

downloaded through a network.

30. (AS TWICE AMENDED) A method of displaying a relevant document for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network, the cross-referenced message documents having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said method comprising:

- estimating topic patterns of the cross-referenced message documents stored in a document database based on contents of the documents, information pertaining to the documents, and cross-references among the documents;

- generating plural types of display indexes corresponding to the topic patterns;
- inputting a retrieval request corresponding to the document database from a user;
- retrieving a document in the document database to produce a retrieval result;
- generating plural types of views for displaying the retrieval result using the display indexes;

- switching the views ; and

- displaying the views on a display device.

31. (AS TWICE AMENDED) A computer-readable storage medium storing instructions to direct a computer to perform a method for displaying a group of documents containing cross-referenced message documents contributed to at least one of a forum and a message board established through a computer network, the cross-referenced message documents having a cross-referenced relationship in which a document contributed earlier is referenced by documents contributed afterwards, said method comprising:

- estimating topic patterns of the cross-referenced message documents stored in a document database based on contents of the documents, information pertaining to the documents, and cross-references among the documents;

- generating plural types of display indexes corresponding to the topic patterns;
- inputting a retrieval request corresponding to the document database from a user;
- retrieving a document in the document database to produce a retrieval result;
- generating plural types of views for displaying the retrieval result using the display indexes;

- switching the views ; and

displaying the views on a display device.